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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,770	09/10/2003	Changhwe Choi	2557-000108/US	3911

30593 7590 12/22/2006  
HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 8910  
RESTON, VA 20195

EXAMINER
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FATAHI YAR, MAHMOUD

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/658,770	<b>Applicant(s)</b> CHOI ET AL.	
	<b>Examiner</b> Mike Fatahiyar	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7, 19-21, 26 and 27 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8-16, 22-25 and 28-32 is/are rejected.
- 7) ☒ Claim(s) 3-4 and 17-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 8-16, 22-25 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong et al(6,717,468B1) in view of Aoki et al(6,903,610B2).

Jeong et al disclose a high slew rate amplifying circuit for a TFT-type of LCD system comprising an LCD panel(100), a plurality of source drivers(130) connected to the panel, each of the source drivers including an output buffer; each output buffer including an operational amplifier(see figure 4), a pull-up transistor(MO12), a pull-down transistor(MO11), a control circuit(MO4, MO7), a capacitor(460), a high-part amplifying sub-circuit(MO1, MO2, MO3, MO5), a low-part amplifying sub-circuit(MO6, MO8, MO9, MO10) wherein the low part and the high part amplifying circuits have voltage follower configuration including a plurality of transistors which all function as claimed. Jeong et al substantially show all the features of the above claims except for the "pull-up transistor and the pull-down transistor connected to an output of the operational amplifier" and "a control circuit to selectively actuate the pull-up transistor and the pull-down transistor". However, Aoki et al is cited to show that the concept of a push-pull transistor(2) connected to an output of an operational amplifier(11) and a control circuit(3) for selectively actuating the pull-up transistor and the pull-down transistor(2) respectively for providing a high slew rate signal transition is old(see figure 1-2). Thus, it would have

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been obvious to one of ordinary skill in the art to modify the system Jeong et al with the above noted teachings of Aoki et al such that to provide a push-pull transistor which is selectively controlled by a control circuit connected to an output of the operational amplifier circuit of Jeong et al because both references are related to a high slew rate amplifying circuit.

In claims 2, 16, 25 and 30-32, as to the limitation "for one of the following: less than about  $\frac{1}{2}$  of the period of a polarity signal; or less than period of an output enable signal", such is also the case in the high slew rate amplifying circuit of Aoki et al because the push-pull transistors(21-22) are selectively controlled.

3. Claim 5-7, 19-21 and 26-27 are allowed.
4. Claims 3-4 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Applicant's arguments with respect to claims 1-2, 8-16, 22-25 and 28-32 have been considered but are moot in view of the new ground(s) of rejection.
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yasukouchi et al and Suyama et al are made of record to show


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various types operational amplifier circuit having a push-pull transistor which is selectively controlled connected to an output of an operational amplifier.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Fatahiyar whose telephone number is (571)272-7688. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
DEC 19 2006

  
M. Fatahiyar  
December 19, 2006